



SEQUENCE LISTING

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<120> T Helper Cell Epitopes

<130> 47-201

<140> US 10/705,819
<141> 2003-11-13

<150> US 09/890650
<151> 2002-03-22

<150> PCT/AU00/00070
<151> 2000-02-07

<150> AU PP8533
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<151> 1999-08-04

<160> 30

<170> PatentIn version 3.1

<210> 1
<211> 17
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<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P2

<400> 1

Ser Ser Lys Thr Gln Thr His Thr Gln Gln Asp Arg Pro Pro Gln Pro
1 5 10 15

Ser

<210> 2

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P4

<400> 2

Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr Ser Arg Ala Arg His
1 5 10 15

Ser

<210> 3

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P6

<400> 3

Arg His Ser Thr Thr Ser Ala Gln Arg Ser Thr His Tyr Asp Pro Arg
1 5 10 15

Thr

<210> 4
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P8

<400> 4

Pro Arg Thr Ser Asp Arg Pro Val Ser Tyr Thr Met Asn Arg Thr Arg
1 5 10 15

Ser

<210> 5
<211> 17
<212> PRT
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<220>
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<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P10

<400> 5

Thr Arg Ser Arg Lys Gln Thr Ser His Arg Leu Lys Asn Ile Pro Val
1 5 10 15

His

<210> 6
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
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<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P24

<400> 6

Ser	His	Gln	Tyr	Leu	Val	Ile	Lys	Leu	Ile	Pro	Asn	Ala	Ser	Leu	Ile
1				5				10						15	

Glu

<210> 7
<211> 17
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<213> Artificial Sequence

<220>
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<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P22

<400> 7

Ile	Gly	Thr	Asp	Asn	Val	His	Tyr	Lys	Ile	Met	Thr	Arg	Pro	Ser	His
1				5				10						15	

Gln

<210> 8
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P23

<400> 8

Tyr Lys Ile Met Thr Arg Pro Ser His Gln Tyr Leu Val Ile Lys Leu
1 5 10 15

Ile

<210> 9
<211> 17
<212> PRT
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<220>
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<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P25

<400> 9

Lys Leu Ile Pro Asn Ala Ser Leu Ile Glu Asn Cys Thr Lys Ala Glu
1 5 10 15

Leu

<210> 10
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P27

<400> 10

Ala Glu Leu Gly Glu Tyr Glu Lys Leu Leu Asn Ser Val Leu Glu Pro
1 5 10 15

Ile

<210> 11

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

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<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P28

<400> 11

Lys Leu Leu Asn Ser Val Leu Glu Pro Ile Asn Gln Ala Leu Thr Leu
1 5 10 15

Met

<210> 12

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P29

<400> 12

Glu Pro Ile Asn Gln Ala Leu Thr Leu Met Thr Lys Asn Val Lys Pro
1 5 10 15

Leu

<210> 13
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P33

<400> 13

Phe	Ala	Gly	Val	Val	Leu	Ala	Gly	Val	Ala	Leu	Gly	Val	Ala	Thr	Ala
1				5					10					15	

Ala

<210> 14
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P34

<400> 14

Gly	Val	Ala	Leu	Gly	Val	Ala	Thr	Ala	Ala	Gln	Ile	Thr	Ala	Gly	Ile
1				5						10				15	

Ala

<210> 15
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P35

<400> 15

Thr Ala Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Asn Leu
1 5 10 15

Asn

<210> 16
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P36

<400> 16

Gly Ile Ala Leu His Gln Ser Asn Leu Asn Ala Gln Ala Ile Gln Ser
1 5 10 15

Leu

<210> 17
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P37

<400> 17

Asn Leu Asn Ala Gln Ala Ile Gln Ser Leu Arg Thr Ser Leu Glu Gln
1 5 10 15

Ser

<210> 18
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P38

<400> 18

Gln Ser Leu Arg Thr Ser Leu Glu Gln Ser Asn Lys Ala Ile Glu Glu
1 5 10 15

Ile

<210> 19
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P39

<400> 19

Glu Gln Ser Asn Lys Ala Ile Glu Glu Ile Arg Glu Ala Thr Gln Glu
1 5 10 15

Thr

<210> 20

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P47

<400> 20

Thr Glu Leu Leu Ser Ile Phe Gly Pro Ser Leu Arg Asp Pro Ile Ser
1 5 10 15

Ala

<210> 21

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (1)..(17)

<223> Description of Artificial Sequence: synthetic canine distemper virus
peptide P62

<400> 21

Pro Arg Tyr Ile Ala Thr Asn Gly Tyr Leu Ile Ser Asn Phe Asp Glu
1 5 10 15

Ser

<210> 22
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P68

<400> 22

Cys	Ile	Arg	Gly	Asp	Thr	Ser	Ser	Cys	Ala	Arg	Thr	Leu	Val	Ser	Gly
1				5					10					15	

Thr

<210> 23
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P64

<400> 23

Asp	Glu	Ser	Ser	Cys	Val	Phe	Val	Ser	Glu	Ser	Ala	Ile	Cys	Ser	Gln
1				5					10					15	

Asn

<210> 24
<211> 17

<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P74

<400> 24

Thr	Ser	Thr	Ile	Ile	Asn	Gln	Ser	Pro	Asp	Lys	Leu	Leu	Thr	Phe	Ile
1				5					10					15	

Ala

<210> 25
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE
<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P75

<400> 25

Ser	Pro	Asp	Lys	Leu	Leu	Thr	Phe	Ile	Ala	Ser	Asp	Thr	Cys	Pro	Leu
1				5					10					15	

Val

<210> 26
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> PEPTIDE

<222> (1)..(17)
<223> Description of Artificial Sequence: synthetic canine distemper virus peptide P32

<400> 26

Ser Gly Arg Arg Gln Arg Arg Phe Ala Gly Val Val Leu Ala Gly Val
1 5 10 15

Ala

<210> 27
<211> 662
<212> PRT
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (1)..(662)
<223> Description of Artificial Sequence: full length canine distemper virus fusion protein

<400> 27

Met His Arg Gly Ile Pro Lys Ser Ser Lys Thr Gln Thr His Thr Gln
1 5 10 15

Gln Asp Arg Pro Pro Gln Pro Ser Thr Glu Leu Glu Glu Thr Arg Thr
20 25 30

Ser Arg Ala Arg His Ser Thr Thr Ser Ala Gln Arg Ser Thr His Tyr
35 40 45

Asp Pro Arg Thr Ser Asp Arg Pro Val Ser Tyr Thr Met Asn Arg Thr
50 55 60

Arg Ser Arg Lys Gln Thr Ser His Arg Leu Lys Asn Ile Pro Val His
65 70 75 80

Gly Asn His Glu Ala Thr Ile Gln His Ile Pro Glu Ser Val Ser Lys
85 90 95

Gly Ala Arg Ser Gln Ile Glu Arg Arg Gln Pro Asn Ala Ile Asn Ser
100 105 110

Gly Ser His Cys Thr Trp Leu Val Leu Trp Cys Leu Gly Met Ala Ser
115 120 125

Leu Phe Leu Cys Ser Lys Ala Gln Ile His Trp Asp Asn Leu Ser Thr
130 135 140

Ile Gly Ile Ile Gly Thr Asp Asn Val His Tyr Lys Ile Met Thr Arg
145 150 155 160

Pro Ser His Gln Tyr Leu Val Ile Lys Leu Ile Pro Asn Ala Ser Leu
165 170 175

Ile Glu Asn Cys Thr Lys Ala Glu Leu Gly Glu Tyr Glu Lys Leu Leu
180 185 190

Asn Ser Val Leu Glu Pro Ile Asn Gln Ala Leu Thr Leu Met Thr Lys
195 200 205

Asn Val Lys Pro Leu Gln Ser Leu Gly Ser Gly Arg Arg Gln Arg Arg
210 215 220

Phe Ala Gly Val Val Leu Ala Gly Val Ala Leu Gly Val Ala Thr Ala
225 230 235 240

Ala Gln Ile Thr Ala Gly Ile Ala Leu His Gln Ser Asn Leu Asn Ala
245 250 255

Gln Ala Ile Gln Ser Leu Arg Thr Ser Leu Glu Gln Ser Asn Lys Ala
260 265 270

Ile Glu Glu Ile Arg Glu Ala Thr Gln Glu Thr Val Ile Ala Val Gln
275 280 285

Gly Val Gln Asp Tyr Val Asn Asn Glu Leu Val Pro Ala Met Gln His
290 295 300

Met Ser Cys Glu Leu Val Gly Gln Arg Leu Gly Leu Arg Leu Leu Arg
305 310 315 320

Tyr Tyr Thr Glu Leu Leu Ser Ile Phe Gly Pro Ser Leu Arg Asp Pro

325

330

335

Ile Ser Ala Glu Ile Ser Ile Gln Ala Leu Ile Tyr Ala Leu Gly Gly
 340 345 350

Glu Ile His Lys Ile Leu Glu Lys Leu Gly Tyr Ser Gly Ser Asp Met
 355 360 365

Ile Ala Ile Leu Glu Ser Arg Gly Ile Lys Thr Lys Ile Thr His Val
 370 375 380

Asp Leu Pro Gly Lys Phe Ile Ile Leu Ser Ile Ser Tyr Pro Thr Leu
 385 390 395 400

Ser Glu Val Lys Gly Val Ile Val His Arg Leu Glu Ala Val Ser Tyr
 405 410 415

Asn Ile Gly Ser Gln Glu Trp Tyr Thr Thr Val Pro Arg Tyr Ile Ala
 420 425 430

Thr Asn Gly Tyr Leu Ile Ser Asn Phe Asp Glu Ser Ser Cys Val Phe
 435 440 445

Val Ser Glu Ser Ala Ile Cys Ser Gln Asn Ser Leu Tyr Pro Met Ser
 450 455 460

Pro Leu Leu Gln Gln Cys Ile Arg Gly Asp Thr Ser Ser Cys Ala Arg
 465 470 475 480

Thr Leu Val Ser Gly Thr Met Gly Asn Lys Phe Ile Leu Ser Lys Gly
 485 490 495

Asn Ile Val Ala Asn Cys Ala Ser Ile Leu Cys Lys Cys Tyr Ser Thr
 500 505 510

Ser Thr Ile Ile Asn Gln Ser Pro Asp Lys Leu Leu Thr Phe Ile Ala
 515 520 525

Ser Asp Thr Cys Pro Leu Val Glu Ile Asp Gly Ala Thr Ile Gln Val
 530 535 540

Gly Gly Arg Gln Tyr Pro Asp Met Val Tyr Glu Gly Lys Val Ala Leu
 545 550 555 560

Gly Pro Ala Ile Ser Leu Asp Arg Leu Asp Val Gly Thr Asn Leu Gly
565 570 575

Asn Ala Leu Lys Lys Leu Asp Asp Ala Lys Val Leu Ile Asp Ser Ser
580 585 590

Asn Gln Ile Leu Glu Thr Val Arg Arg Ser Ser Phe Asn Phe Gly Ser
595 600 605

Leu Leu Ser Val Pro Ile Leu Ser Cys Thr Ala Leu Ala Leu Leu Leu
610 615 620

Leu Ile Tyr Cys Cys Lys Arg Arg Tyr Gln Gln Thr Leu Lys Gln His
625 630 635 640

Thr Lys Val Asp Pro Ala Phe Lys Pro Asp Leu Thr Gly Thr Ser Lys
645 650 655

Ser Tyr Val Arg Ser Leu
660

<210> 28
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic luteinising hormone
releasing hormone 1-10 peptide

<220>
<221> misc_feature
<222> (1)..(10)
<223> Description of Artificial Sequence: synthetic luteinising hormone
releasing hormone (LHRH 1-10) peptide

<400> 28

Glu His Trp Ser Tyr Gly Leu Arg Pro Gly
1 5 10

<210> 29
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic luteinising hormone releasing hormone 2-10 peptide

<400> 29

His Trp Ser Tyr Gly Leu Arg Pro Gly
1 5

<210> 30
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
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<222> (1)..(27)
<223> Description of Artificial Sequence: synthetic peptide comprising T helper epitope of influenza virus

<400> 30

Ala Leu Asn Asn Arg Phe Gln Ile Lys Gly Val Glu Leu Lys Ser Asn
1 5 10 15

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
20 25